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1: *Virology* 1990 May;176(1):114-25 Related Articles, Books, Protein, Nucleotide, LinkOut

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Coding properties of the S and the M genome segments of Sapporo rat virus: comparison to other causative agents of hemorrhagic fever with renal syndrome.

Arikawa J, Lapenotiere HF, Iacono-Connors L, Wang ML, Schmaljohn CS

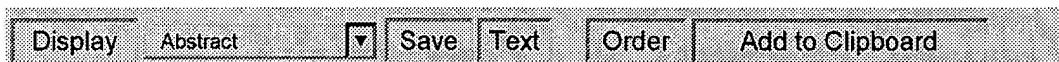
Related Resources

Virology Division, United States Army Medical Research Institute of Infectious Diseases, Fort Detrick, Frederick, Maryland 21701-5011.

Three serologically distinct groups of hantaviruses have been associated with severe, moderate, and mild forms of hemorrhagic fever with renal syndrome (HFRS). To gain a better understanding of the genetic variation among these viruses, we cloned and sequenced the M and the S genome segments of Sapporo rat virus, an etiologic agent of moderate HFRS, and compared the predicted gene products to those of Hantaan virus, and the Hallnas strain of Puumala virus, which are etiologic agents of severe and mild HFRS, respectively. The SR-11 S segment consisted of 1769 nucleotides and had an open reading frame (ORF) in the virus-complementary sense RNA with a coding capacity of 429 amino acids. Deduced amino acids from the SR-11 S segment ORF displayed 83% homology with those of Hantaan nucleocapsid (N) protein. Comparison of the S segment ORFs of all three viruses revealed 58% homology. No evidence for additional nonstructural protein(s) encoded by the SR-11 S segment was obtained. The SR-11 M segment consisted of 3651 nucleotides and had an ORF in the virus-complementary sense RNA with a coding capacity of 1134 amino acids. Amino acid sequences predicted from the SR-11 M segment ORF were 75% homologous with those encoding Hantaan G1 and G2 envelope glycoproteins. Comparison of the deduced amino acid sequences of the M segment ORFs of SR-11, Hantaan, and Hallnas viruses revealed a 43% homology for amino acids constituting the G1 proteins and a 55% homology for amino acids constituting the G2 proteins of the three viruses. The envelope proteins of SR-11 virus were localized within the M segment ORF by amino-terminal sequence analysis of purified G1 and G2. G1 initiated at amino acid 17 and G2 at amino acid 647 within the ORF. Five potential asparagine-linked glycosylation sites were

identified in the SR-11 G1 coding sequences, four of which were conserved between Hantaan and SR-11 viruses and three of which were conserved among all three viruses. One potential glycosylation site was identified in the SR-11 G2 coding sequences and was conserved among Hantaan, SR-11 and Hallnas viruses. Cysteine residues were highly conserved within the M segment ORFs of all three viruses, suggesting a similar structure and function of the G1 and G2 proteins.

PMID: 1970443



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1: M34882 Sapporo rat virus mRNA M segment, PubMed, Protein, Related Sequences, Taxonomy
encoding an ORF, complete cds

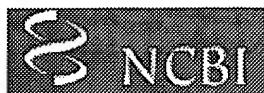
LOCUS SRVAGSM 3651 bp ss-RNA VRL 03-AUG-1993
 DEFINITION Sapporo rat virus mRNA M segment, encoding an ORF, complete cds.
 ACCESSION M34882
 VERSION M34882.1 GI:335017
 KEYWORDS
 SOURCE Sapporo rat virus (strain SR-11), cDNA to viral RNA, passed in Vero E6 cell line C1008.
 ORGANISM Sapporo rat virus
 REFERENCES Viruses; ssRNA negative-strand viruses; Bunyaviridae; Hantavirus.
 1 (bases 1 to 3651)
 AUTHORS Arikawa, J., Lapanotiere, H.F., Iacono-Connors, L., Wang, M.G. and Schmaljohn, C.S.
 TITLE Coding properties of the S and the M genome segments of Sapporo rat virus: Comparison to other causative agents of hemorrhagic fever with renal syndrome
 JOURNAL Virology 176, 114-125 (1990)
 MEDLINE 90232720
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11



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1: M34881 Sapporo rat virus mRNA S segment, encoding an ORF, complete cds PubMed, Protein, Related Sequences, Taxonomy

LOCUS SRVAGSS 1769 bp ss-RNA VRL 03-AUG-1993
 DEFINITION Sapporo rat virus mRNA S segment, encoding an ORF, complete cds.
 ACCESSION M34881
 VERSION M34881.1 GI:335019
 KEYWORDS .
 SOURCE Sapporo rat virus (strain SR-11), cDNA to viral RNA, passed in Vero E6 cell line C1008.
 ORGANISM Sapporo rat virus
 REFERENCES Viruses; ssRNA negative-strand viruses; Bunyaviridae; Hantavirus.
 1 (bases 1 to 1769)
 AUTHORS Arikawa, J., Lapanotiere, H.F., Iacono-Connors, L., Wang, M.G. and Schmaljohn, C.S.
 TITLE Coding properties of the S and the M genome segments of Sapporo rat virus: Comparison to other causative agents of hemorrhagic fever with renal syndrome
 JOURNAL Virology 176, 114-125 (1990)
 MEDLINE 90232720
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BASE COUNT 569 a 331 c 410 g 459 t
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